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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,035	06/24/2003	Surajit Chaudhuri	303855.01	2365

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EXAMINER

MIZRAHI, DIANE D

ART UNIT	PAPER NUMBER
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2165

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,035

Applicant(s)

CHAUDHURI ET AL.

Examiner

DIANE D. MIZRAHI

Art Unit

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8-6-03</u> . | 6) <input type="checkbox"/> Other: ____. |

III. DETAILED ACTION

Claims 1-46 are presented for examination and are pending.

Drawings

The Examiner contends that the drawings submitted on June 24, 2003 are acceptable for examination proceedings.

Claim Rejections - 35 USC , 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

Claims 1-46 are rejected under 35 U.S.C. 101 because the claims are directed to a non-statutory subject matter, specifically, the claims are not directed towards the final result that is "useful, tangible and concrete

(See State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02)..

According to the New Guidelines of October 26, 2005, which states that "A claim limited to a machine or manufacture, which has a practical application, is statutory. In most cases a claim to a specific machine or manufacture will have a practical application. See Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557)...

Art Unit: 2165

a specific machine to produce a useful, concrete, and tangible result and State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02).

(Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility
<[http://rs6.net/tn.jsp?t=mdmd7pbab.0.kbg76pbab.p9qiiibab.7440&p=http%3A%2F%2Fwww.uspto.gov%2Fweb%2Foffices%2Fpac%2Fdapp%2Fopla%2Fpreognotice%2Fguidelines101 20051026.pdf](http://rs6.net/tn.jsp?t=mdmd7pbab.0.kbg76pbab.p9qiiibab.7440&p=http%3A%2F%2Fwww.uspto.gov%2Fweb%2Foffices%2Fpac%2Fdapp%2Fopla%2Fpreognotice%2Fguidelines101%2020051026.pdf)>)

Claims 24-46 are rejected under 35 U.S.C. 101 because the claims are directed to a non-statutory subject matter, specifically, directed towards "*computer usable medium*".

According to Applicant's specification (Page 8 paragraph 1) is evident that Applicant intends for "computer usable medium" to include embodiments where the medium is not limited to the media that the Office believes are capable of realizing the underlying functionality of the instructions.

Specifically, while the volatile and not-volatile embodiments would be statutory, the transmission media as described in the specification is not believed to be covered by any of the statutory categories of invention nor would it enable any underlying functionality to be realized. Note that deleting subject matter from the specification may raise the issue of new matter. However, rephrasing is permissible in accordance with MPEP 2163.07.

Therefore, Examiner believes that the above listed claims are nonstatutory.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 12-17, 20-32, 35-40, 43 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over H.V. Jagadish et al. (ACM Publication, 1999 entitled, "Multi-Dimensional Substring Selectivity Estimation" and Jagadish hereinafter) in view of Freytag et al. (U.S. Patent# 6,738,755 B1 and Freytag hereinafter).

Regarding Claim 1, Jagadish teaches estimating selectivity of a given string predicate in a database query, comprising: a) estimating selectivities of string substrings of various substring lengths; b) selecting a candidate substring for each substring length based on estimated selectivities of the

substrings; c) combining the estimated selectivities of the candidate substrings; and d) returning the combined estimated selectivities of the candidate substrings as the estimated selectivity of the given string.... (pages 388-390).

Jagadish does not expressly teach predicate.

Freytag teaches predicate (col 6, lines 19-62).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Jagadish with the teachings of Freytag to include the claimed, "predicate" with the motivation to minimize an estimated cost metric (Freytag, col 3, lines 1-3).

Regarding Claim 2, Jagadish storing selectivity information for the database and using stored selectivity information to estimate the selectivities of the substrings of various lengths (pages 388-390).

Regarding Claim 3, Jagadish teaches substring with a lowest estimated selectivity is selected as the candidate substring at each length (page 388).

Regarding Claim 4, Jagadish selectivities of substrings of a given maximum length and using the exact selectivities to estimate the selectivities of the substrings of various substring lengths (pages 388-390).

Regarding Claim 5, Jagadish teaches a range of the various substring lengths whose selectivities are estimated is between the given maximum length of the substrings whose selectivities are calculated exactly and the length of the given string ... (pages 388-390) predicate.

Jagadish does not expressly teach predicate.

Freytag teaches predicate (col 6, lines 19-62).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Jagadish with the teachings of Freytag to include the claimed, "predicate" with the motivation to minimize an estimated cost metric (Freytag, col 3, lines 1-3).

Regarding Claim 6, Jagadish teaches candidate substring for the length equal to the given maximum length of the substrings whose selectivities are calculated exactly is selected based on the exact selectivity of the substring (pages 388-390).

Regarding Claim 7, Jagadish teaches ... table is constructed for substrings of a given maximum length and is accessed to estimate selectivities of substrings of various substring lengths (pages 390-391).

Regarding Claim 8, Jagadish ... estimator uses the exact selectivities to estimate the selectivities of the substrings of

various substring lengths (pages 388-390).

Regarding Claim 9, Jagadish teaches ... of string values in a relation of the database are used to combine the estimated selectivities of the candidate substrings (pages 388-390).

Regarding Claim 12, Jagadish teaches ... substrings at run time to estimate the string selectivity (page 396).

Jagadish does not expressly teach predicate.

Freytag teaches predicate (col 6, lines 19-62).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Jagadish with the teachings of Freytag to include the claimed, "predicate" with the motivation to minimize an estimated cost metric (Freytag, col 3, lines 1-3).

Regarding Claim 13, Jagadish does not expressly teach predicate.

Freytag teaches predicate (col 6, lines 19-62).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Jagadish with the teachings of Freytag to include the claimed, "predicate" with the motivation to minimize an estimated cost metric (Freytag, col 3, lines 1-3).

Regarding Claim 14, Jagadish teaches wildcard (page 397).

Jagadish does not expressly teach predicate.

Freytag teaches predicate (col 6, lines 19-62).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Jagadish with the teachings of Freytag to include the claimed, "predicate" with the motivation to minimize an estimated cost metric (Freytag, col 3, lines 1-3).

Regarding Claim 15, Jagadish does not expressly teach predicate.

Freytag teaches predicate (col 6, lines 19-62).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Jagadish with the teachings of Freytag to include the claimed, "predicate" with the motivation to minimize an estimated cost metric (Freytag, col 3, lines 1-3).

Regarding Claim 16, Jagdish teaches length of candidate substring to combine the selectivities of the candidate substrings (page 388-390).

Regarding Claim 17, Jadadish teaches ... weights is learned from data sets of the database (pages 388-391) .

Regarding Claims 20 and 43, the limitations of these claims is similar in scope to the rejected claims above and are therefore rejected as set forth above.

Regarding Claims 21-23, Jagadish using regression trees (i.e. reads on pruned trees) (pages 390-391).

Regarding Claims 24-32, 35-40, 43-36, the limitations are similar in scope to the rejected claims above and are therefore rejected as set forth above.

Claims 10-11, 18-19, 33-34 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over H.V. Jagadish et al. (ACM Publication, 1999 entitled, "Multi-Dimensional Substring Selectivity Estimation" and Jagadish hereinafter and Freytag et al. (U.S. Patent# 6,738,755 B1 and Freytag hereinafter) in further view of Chen et al. (US Patent No. 6,738,762 B1 and Chen hereinafter).

The teachings of Jagadish and Freytag have been discussed above.

Regarding Claims 10-11, 18-19, 33-34 and 41-42 the limitations of these claims are similar in scope to the rejected claims above. In addition, Jagadish and Freytag do not expressly teach workload.

Chen teaches workload (col 10, lines 17-45).

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to modify the

Art Unit: 2165

teachings of Jagadish and Freytag with the teachings of Chen to include the claimed, "workload" with the motivation to obtain fast and accurate estimates (Chen, col 1, lines 40-41).

4

Other Prior Art Made of Record

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. U.S. patents and U.S. patent application publications will not be supplied with Office actions. Examiners advises the Applicant that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. For the use of the Office's PAIR system, Applicants may refer to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diane D.

Art Unit: 2165

Mizrahi whose telephone number is 571-272-4079. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 305-3900 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

A handwritten signature in black ink, appearing to read 'Diane Mizrahi', is written over a horizontal line.

Diane Mizrahi
Primary Patent Examiner
Technology Center 2100

January 6, 2005